

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A cable modem tuner, comprising:
 - a tuner circuit taking and amplifying a signal corresponding to a reception channel from input signals, and converting to an intermediate frequency signal of a first frequency band; and
 - a down converter circuit receiving the intermediate frequency signal of said first frequency band from said tuner circuit, and selectively outputting an intermediate frequency signal of said first frequency band or a second frequency band lower than said first frequency band; wherein
 - said down converter circuit includes
 - a local oscillation circuit generating an oscillation signal corresponding to said second frequency band in a first mode in which the intermediate frequency signal of said second frequency band is output, and stopping generation of said oscillation signal in a second mode in which the intermediate frequency signal of said first frequency band is output,
 - a mixer circuit for mixing the intermediate frequency signals of said first frequency band input to said down converter circuit with an output of said local oscillation circuit, and outputting an intermediate frequency signal of said second frequency band in said first mode and outputting an intermediate frequency signal of said first frequency band in said second mode, and
 - a filter circuit receiving an output signal from said mixer circuit and passing a signal of a frequency corresponding to a set cut off frequency.

2. (original) The cable modem tuner according to claim 1, wherein
 - said tuner circuit includes a first automatic gain control circuit for adjusting amplitude of a signal corresponding to said reception channel to a prescribed level,
 - said tuner further comprising

a second automatic gain control circuit provided between said tuner circuit and said down converter circuit, for adjusting amplitude of the intermediate frequency signal of said first frequency band to a prescribed level.

3. (original) The cable modem tuner according to claim 2, wherein total gain attained by said first and second automatic gain control circuits is at least 55dB.

4. (original) The cable modem tuner according to claim 1, wherein said tuner circuit and said down converter circuit output signals of non-parallel type, said cable modem tuner further comprising
a signal converting circuit receiving an output of said down converter and converting to a parallel type signal.

5. (original) The cable modem tuner according to claim 1, wherein said mixer circuit amplifies the intermediate frequency signal of said first frequency band in said second mode.

6. (currently amended) The cable modem tuner according to claim 1, wherein said local oscillation circuit includes
an oscillation element oscillating at said second frequency band,
a first bipolar transistor receiving at a base an output of said oscillation element,
a first bias resistance coupled between the base of said first transistor and a first voltage node, and
a second bias resistance connected between an emitter of said first bipolar transistor and a ground node; and
said mixer circuit includes
a second bipolar transistor connected at a base to said first voltage node, and receiving at a the base an output of said oscillation element and the intermediate frequency signal of said first frequency band, and

a third bias resistance connected between the base of said second bipolar transistor and a second voltage node supplying a voltage higher than said first voltage node.

7. (original) The cable modem tuner according to claim 6, wherein
said local oscillation circuit includes a switch element of which on/off is
instructed externally, connected parallel to said oscillation element,
said switch element turning on/off in said first and second modes, respectively.

8. (original) The cable modem tuner according to claim 6, wherein
said filter circuit and said bias resistance are mounted on one surface of a printed
board, and
said down converter circuit except for said second bias resistance is mounted on
the other surface of the printed board.

9. (original) The cable modem tuner according to claim 1, wherein
said cut off frequency is set such that the signal of said second frequency band is
passed and the signal of said first frequency band is attenuated in said first mode, and that the
signals of said first and second frequency bands are passed in said second mode.

10. (original) The cable modem tuner according to claim 9, wherein
said filter circuit has
an inductance element passing an output signal of said mixer circuit,
a first capacitance element coupled between said induction element and the
ground node, a second capacitance element coupled in parallel with said induction element, and
a switch element provided parallel to said second capacitance element and of
which on/off is instructed externally,
said switch element being turned off/on in said first and second modes,
respectively.

11. (original) The cable modem tuner according to claim 1, further comprising:
 - an intermediate frequency automatic gain control circuit positioned between said tuner circuit and said down converter circuit adjusting amplitude of the intermediate frequency signal of said first frequency band to a prescribed range; and
 - a signal converting circuit receiving an output of said down converter circuit and converting to a parallel type signal; whereinsaid cut off frequency is set such that the signal of said second frequency band is passed and the signal of said first frequency band is attenuated in said first mode, and that the signals of said first and second frequency bands are passed in said second mode.
12. (original) The cable modem tuner according to claim 11, wherein
said tuner circuit, said intermediate frequency automatic gain control circuit, said down converter circuit and said signal converting circuit are contained in one box.
13. (original) The cable modem tuner according to claim 1, further comprising:
 - an upstream circuit for transmitting a data signal to a cable television station; and
 - a high pass filter for introducing a multiwave down signal from said cable television station while removing said data signal.
14. (original) The cable modem tuner according to claim 13, wherein
said upstream circuit includes
 - a variable gain amplifying circuit amplifying the data signal to said CATV station with a prescribed gain, and
 - a coupling circuit coupling an output of said amplifying circuit to an input of said high pass filter.

15. (original) The cable modem tuner according to claim 13, wherein
a down data signal of a band different from said multiwave down signal is input
from said CATV station to said receiving circuit through a cable, and
said receiving circuit includes a branching circuit branching and outputting said
down data signal.

16. (original) The cable modem tuner according to claim 13, wherein
said upstream circuit, said tuner, said high pass filter and said down converter are
contained in a shield case partitioned individually.